REMARKS

Claims 1-15 are in this application and are presented for consideration. By this Amendment, Applicant has amended claims 1, 6 and 11 based on the amendment filed January 29, 2008. Claims 1, 6 and 11 have been amended to highlight that the press device has a plurality of displacement measurement means. Applicant has also included below the remarks found in the amendment filed January 29, 2008.

The drawings have been objected to because the Office Action states that Figure 7 should be designated by a legend such as "Prior Art" since only that which is old is illustrated.

Applicant has attached replacement sheets of drawings of Figures 7, 8, 9 and 10 to designate the figures as "Prior Art".

Claims 1-5 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Applicant has amended claims 1-5 to clarify the features of the invention and to place the claims in better form. It is Applicant's position that claims 1-5 as now presented are clear and satisfy the requirements of the statute.

Claims 1-3 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 2003/0019267 (hereinafter " '267 Futamura et al.).

The present invention relates to a press device. The press device comprises a plurality of motors wherein each motor actuates a drive shaft. A control device receives displacement data and torque data. The displacement data corresponds to the inclination of a slider during

movement of the slider based on rotation of one of a plurality of drive shafts. The torque data corresponds to torque supplied to each of the plurality of motors during movement of the slider. The control device controls each of the plurality of motors independently based on the displacement data and the torque data such that the slider is maintained in a horizontal position. This advantageously allows the slider to be accurately controlled. This advantageously controls the slider so that there is no delay in controlling the motors such that the drive shafts move the slider while maintaining the slider at a stable horizontal position. The prior art as a whole fails to disclose such features or control advantages.

'267 Futamura et al. discloses a pressure device comprising a base plate and a support plate spaced at a prescribed distance from the base plate. The pressure device also comprises a first slider and a second slider. The first slider and the second slider are formed so that the two can move between the base plate and the support plate in a direction orthogonal to the base plate and support plate and are capable of relative movement with each other in that direction. A position sensor detects the moving position of the second slider. A first drive means drives the first slider. A second drive means drives the second slider. A central processing unit controls the first drive means and second drive means and receives and processes position signals from the position sensor.

'267 Futamura et al. fails to teach and fails to suggest the combination of a control means having an extraction data means for extracting displacement data and for extracting data of torque supplied to each one of a plurality of motors as a function of time. '267 Futamura et al. merely discloses a motor 66 for driving a slider 64 and a motor 67 for driving a slider 65.

However, '267 Futamura et al. fails to disclose a control means having an extraction data means as claimed. In fact, '267 Futamura et al. does not disclose a driving and controlling means for performing additional torque strengthening driving such that an additional torque is applied to each of the motors based on the torque data. In contrast to '267 Futamura et al., the control means of the present invention has a data extraction means for extracting data of torque supplied to each one of a plurality of motors as a function of time. According to the present invention, a driving and controlling means controls each motor independently based on the received torque data. This advantageously allows the slider to be controlled with a high accuracy even when an eccentric load is generated at each stage of pressing a workpiece. '267 Futamura et al. only discloses a central processing unit that receives position signals from a position sensor and controls two driving means based on the position signals. However, '267 Futamura et al. does not provide any suggestion that torque data is received from the motor and the motor is controlled based on the received torque data when driving the slider 65. As such, the prior art as a whole fails to disclose each feature of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner favorably consider claim 1 as now presented and all claims that depend thereon.

Claims 1-3 have been rejected under 35 U.S.C. 102(b) as being anticipated by Mukai et al. (U.S. 6,595,122).

Mukai et al. discloses a slide inclination correcting method and a slide inclination correcting apparatus having a slide drive mechanism disposed in a top area of a press machine for driving a slide via a plurality of points to vertically move it up and down, thereby forming

a work piece. The method and apparatus include finding by measurement or computation for each of dies an eccentric load that is to develop in the slide in the process of forming a work piece to prepare a die based slide inclination correcting data for each of the dies. A compensatory amount of inclination is imparted to the slide based on the die based slide inclination correcting data.

Mukai et al. fails to teach or suggest the combination of a plurality of motors wherein the torque of each motor is independently controlled. Mukai et al. merely discloses a slide drive mechanism 4 that drives a slide 7. The slide drive mechanism 4 of Mukai et al. includes a pair of eccentric axles 5, which are driven by a main motor. However, Mukai et al. is void of any suggestion that the torque of the main motor is controlled based on torque data received from the main motor. Compared with the present invention, Mukai et al. pre-prepares a die based slide inclination correcting data for each of the dies individually and stores the correcting data in a control means so that the control means performs the relevant compensation for the inclination of the slide 7 for a specific die. However, Mukai et al. is void of any suggestion that the control means controls the torque supplied to each motor independently based on torque data received from the motors and displacement data corresponding to the inclination of the slider. In contrast to Mukai et al., the control means of the present invention controls the torque supplied to each motor based on torque data received from the motors over a period of time during actuation of the slider. This advantageously allows the slider to be accurately controlled at a horizontal level so that the slider can properly be lowered on the support poles without jamming. The pressing device of Mukai et al. fails to provide such accuracy control

advantages since the control means of the pressing device does not receive any torque data from the main motor and does not transmit an additional torque strengthening signal to the main motor based on the received torque data. As such, the prior art as a whole takes a different approach and fails to disclose each feature of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner favorably consider claim 1 as now presented and all claims that depend thereon.

Claims 1-3 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 2002/0170337 (hereinafter " '337 Futamura et al.").

'337 Futamura et al. discloses a press forming machine for pressing a slide pate, which has a movable mold thereon, by using a plurality of driving sources. A control unit maintains the slide plate at a desired position relative to a fixed mold when an offset load is applied on the slide plate. In the press forming machine, engaging parts corresponding to the driving sources are provided on the slide plate. Displacement measuring units for measuring a displacement of the slide plate are provided near the engaging parts. The control unit includes a unit which measures a displacement of each of the driving sources by using the displacement measuring unit in each of a plurality of operating steps during a molding operation, detects a desired displacement position of the entire slide plate in each of the steps, extracts control data corresponding to the driving sources to maintain the entire slide plate at a displacement position, stores the control data in a memory, supplies the control data to the driving sources and separately drives the driving sources.

'337 Futamura et al. fails to provide any teaching or suggestion for the combination of

a drive and controlling means that controls the torque of each of a plurality of motors based on torque data received from each of the motors at various times when a slider is actuated. At most, '337 Futamura et al. discloses that the speed of a motor is controlled. This is a different approach as compared to the present invention. In an a.c. motor the speed of the a.c. motor is controlled with changing the frequency applied to the motor. In contrast to '337 Futamura et al., the torque of each motor is controlled. The torque in an a.c. motor is controlled with changing the current flowing in the motor, i.e. changing the voltage supplied in the motor. Controlling the torque of each motor of the present invention advantageously provides a more accurate control of the position of the slider. '337 Futamura et al. fails to direct the person of ordinary skill in the art towards controlling the voltage supplied to a motor since '337 Futamura et al. only discloses controlling the speed of the motor. In fact, '337 Futamura et al. fails to disclose that torque data as a function of time is extracted from each of the motors by a data extraction means of a control means. Compared with the present invention, '337 Futamura et al. merely discloses altering the speed of driving sources based on a position of a slider. However, '337 Futamura et al. is void of any suggestion for controlling the driving sources based on torque data corresponding to torque supplied to the motor at various time periods. As such, the prior art as a whole takes a different approach and fails to direct the person of ordinary skill in the art towards controlling a slider based on torque data received from the motors at various times during the actuation of a slider. Accordingly, Applicant respectfully requests that the Examiner favorably consider claim 1 as now presented and all claims that depend thereon.

Applicant has added new claims 6-15. New independent claims 6 and 11 provide for features similar to those found in amended claim 1, but in different claim language. New dependent claims 7-10 and 12-15 have been added to further clarify the features of the invention. Applicant respectfully requests that the Examiner favorably consider new claims 6-15.

Favorable consideration on the merits is requested.

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Enclosed: Four (4) Sheets of Replacement Drawings

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